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Flora of Manila

In no place in the tropics has botanical work made such great strides as in the Philippines. This is particularly true of the systematic botany work of the Bureau of Science under the energetic direction of ELMER D. MERRILL. Until recently no effort had been made to collect the numerous taxonomic papers into a flora for any particular region. *The flora of Manila*² is not a sufficiently comprehensive title, because the work really covers the flora of the more populated coastal regions of the entire archipelago. About 1000 species, or approximately one-sixth of the total number of species known from the islands, are described. These are distributed among 591 genera and 136 families.

The bringing together under one cover of one-sixth of the known flora of the Philippines will make useful a large number of descriptions of plants that heretofore have been practically inaccessible to anyone except the specialist. The usefulness of the work to the layman is enhanced by definition of terms used in descriptive botany (pp. 9-20), some remarks on classification (pp. 20-21), directions for preparing botanical specimens (pp. 21-23), some remarks on the preparation of the material for the herbarium (pp. 24-25), and a glossary of technical terms (pp. 25-33).

The flora includes practically all the species of vascular cryptogams and flowering plants growing naturally within the Manila district, and most of the cultivated forms both of Philippine and of foreign origin. In it one can find descriptions of nearly all the useful and ornamental plants of the Islands, except the timber trees.

It is to be hoped that the recent reorganization of the scientific staff of the Bureau of Science will not materially interfere with progress in this kind of work. Another five years ought to bring forth a flora of the Philippine Islands.—H. N. WHITFORD.

A plant physiology

A plant physiology by KOLKWITZ³ offers several features that are novel for a book bearing its general title. Unusual emphasis is given to the lower forms; 60 pages are devoted to the physiology of "phanerogams" and almost 200 to the study of "cryptogams." This change of emphasis has the advantage of bringing into prominence such cosmic cycles as the nitrogen cycle without in any way detracting from an understanding of other physiological processes. The book, however, can hardly be called a plant physiology. It contains many

² MERRILL, E. D., *The flora of Manila*. pp. 490. Bureau of Science, Manila. 1912.

³ KOLKWITZ, R., *Pflanzenphysiologie, Versuche und Beobachtung an höheren und niederen Pflanzen einschliesslich Bakteriologie und Hydrobiologie mit Planktonkunde*. V. 8vo. pp. 258. pls. 1-12. figs. 116. Jena: Gustav Fischer. 1914.

pages of systematic descriptions in connection with the plankton work, including both plant and animal forms; plant morphology receives some attention, and bacteriological and plankton technique are more or less fully described. One is doubtful whether the physiological viewpoint even prevails.

The book is an outgrowth of exercises that have been used in teachers' courses for fourteen years, involving at least 25 repetitions. In spite of this, one is unable to judge whether it is more a laboratory manual or a descriptive text. It seems poorly suited for either.—WILLIAM CROCKER.

Diseases of tropical plants

COOK⁴ has published a timely volume which introduces us in a compact way to the diseases of the tropics. The study of plant pathology has been chiefly with the crop plants of the temperate regions, but with the growing interest in tropical plants, there must come a knowledge of the tropical diseases. This vast field has yet to be developed, but the scattered literature that does exist should be brought together, and this COOK has done in a very effective way. The spirit of the book is modern, for instead of being merely a list of the parasites inducing diseases, there is a chapter on the nature and symptoms of diseases, and another on the structure and functions of plants. The classification of the disease-producing fungi is restricted to a single chapter, and then a series of chapters takes up the study of the best known tropical diseases. Two final chapters discuss prevention and control, fungicides and spraying apparatus.—J. M. C.

A weed flora

PAMMEL⁵ has set the pace for a comprehensive book on the weed flora of a state. He makes the statement that a conservative estimate of the damage done to the crops of Iowa by weeds is \$25,000,000 annually. If this is true, it is certainly high time the farmers should learn to recognize the dangerous weeds and eliminate them. The contents of the volume can be best indicated by the chapter titles. The first chapter is a descriptive manual (400 pp.), in which every weed is illustrated and its distribution through the state indicated upon a map. The remaining chapter titles are as follows: the general character of seeds; the microscopic structure of some weed seeds; morphology of flowers and leaves; scattering of weeds; roots and rootstocks of weeds; number and kind of weeds in different soils; injuriousness of weeds; weed migration; medicinal weeds; phenology of weeds; weeds and seed laws.—J. M. C.

⁴ COOK, M. T., *The diseases of tropical plants*. 8vo. pp. xi+317. *figs.* 85. London: Macmillan. 1913. \$2.75.

⁵ PAMMEL, L. H., *The weed flora of Iowa*. Iowa Geological Survey. Bull. no. 4. pp. xiii+912. *figs.* 570. 1913.